LS-NII Contract Attachment 1

(Formerly RFP HSBP1005R0376 , Amendment 0002, Amended Attachment 1)

STATEMENT OF WORK /PERFORMANCE SPECIFICATION

LARGE SCALE NON INTRUSIVE INSPECTION (NII) SYSTEMS

May 26, 2005

(Formerly RFP HSBP1005R0376, Amendment 0002, Amended Attachment 1)

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STATEMENT OF WORK

1.0 SCOPE

Customs and Border Protection (CBP) has a need for improving its inspection of cargo conveyances arriving in the United States at various CBP Ports of Entry (POE). Due to recent world events it is imperative for security that incoming cargo conveyances are subjected to a high level of scrutiny. Therefore, CBP seeks to procure large-scale NII imaging systems for various POE, located throughout the United States. This Statement of Work (SOW) defines the tasks necessary to provide NII systems to include equipment, installation, testing, verification, documentation, and logistics requirements needed to satisfy the procurement.

1.1 Program Organization

This program is under the technical direction of the NII Contracting Officer Technical Representative (COTR) assigned to the CBP Applied Technology Division (ATD), Systems Acquisition Branch (SAB).

1.1.1 Government Management Organization

CBP management of this program will be accomplished through the CBP Applied Technology Division (ATD). CBP will coordinate with the NII System contractor or contractors to ensure successful system integration and or handle problems associated with site related issues. The exchange of technical data and the resolution of any interface issues will be facilitated. Critical issues will be expeditiously handled either through conference calls or special meetings at a location mutually agreed upon by CBP and the parties involved.

1.1.2 Contractor Management Organization

The contractor or contractors shall provide, for CBP review, a Project Management Plan, including all major points of contact and the overall management structure. The Project Management Plan shall be prepared in accordance with Data Item Description number A001.

1.2 Purpose

The purpose of NII Inspection Systems is to enable CPB to perform effective and efficient Non-Intrusive Inspection (NII) of conveyances, including trailer trucks, railcars, pallets,

trailer-mounted cargo containers and other vehicles for contraband such as illicit drugs, terrorist weapons and currency. These systems may be used for inspection of smaller vehicles such as cars, pickup trucks, buses, RVs and towed vehicles (e.g., trailers and boats). The system shall be capable of detecting contraband and WMD secreted in vehicles, railcars, containers and pallets.

1.3 Background

CBP officers, in the course of their work examine personnel and cargo seeking entry into the United States. These inspections take place at controlled border ports of entry, and are aimed at detecting items prohibited from import into or export from the U.S. Each day CBP officers use a myriad of NII equipment. NII systems in the mobile configuration will allow short notice relocation to different ports of entry, based on the threat.

1.4 Government Furnished Materials, Property and Information

The NII systems contractor or contractors shall coordinate with CBP and selected ports of entry for information associated with any environmental operating limits. The government will provide phone lines, electrical power, and exterior lighting as required.

2.0 DOCUMENTS

Documents cited shall be referenced and used as called for in this Statement of Work/ Performance Specification and the Data Item Descriptions (DIDs).

2.1 Applicable Documents

- Code of Federal Regulations, 10CFR20, (Standards for Protection Against Radiation), 2002 (NRC)
- American National Standard for General Radiation Safety, ANSI N43.3 (Installations Using Non-Medical X-Ray and Sealed Gamma-Ray Sources, energies up to 10 MeV), 1993
- Code of Federal Regulations, 21CFR179 (Irradiation in the Production, Processing and Handling of Food), 1996 (FDA)
- Code of Federal Regulations, 14 CFR108.17 (e), Use of X-Ray Systems (Photographic Film Safety) (FAA)
- Code of Federal Regulations, 49CFR172 (Hazardous Materials Table, etc.), 2003 (DOT)
- Code of Federal Regulations, 10CFR71 (Packaging and Transportation of Radioactive Materials), 2002 (NRC)
- Occupational Safety and Health Standards (OSHA), 29 CFR 1910, 2004

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- American National Standard, ANSI N42.35 (Evaluation and Performance of Radiation Detection Portal Monitors for Homeland Security), 2004
- American National Standard, ANSI N42.38 (Performance Criteria for Spectroscopy-Based Portal Monitors for Homeland Security), Draft
- American National Standard, ANSI N42.41 (Performance Criteria and Evaluation of Active Interrogation Systems for Homeland Security), in development.
- American Society of Testing and Materials (ASTM),(Performance Standards for CBRNE Sensors), in development
- American Society of Mechanical Engineers Standards
- ASTM Testing Standards (ASTM F 792-01, ASTM E1647-03)
- NFPA 79, Electrical Standards for Industrial Machinery
- NFPA 70, Recommended Practice for Electrical Equipment Maintenance
- Any future applicable ANSI standards.

3.0 REQUIREMENTS

The contractor shall perform all tasks within this SOW through issued delivery orders. The contractor shall abide by all applicable Code of Federal Regulations in performing all tasks. The contractor shall be held liable for adhering to such regulations. Requirements for this effort shall include the fabrication, integration, test, installation, training and logistics support of NII inspection systems. These systems will be located at various CBP POE along the southwest and northern borders, seaports and airports within the United States. Specific sites and schedules shall be identified during contract negotiations.

3.1 General Requirements - CLIN's 00010 to 00140

The requirements of this contract will be divided into two categories; 1) Low Density Cargoes and 2) High Density Cargoes. Under both categories, the contractor shall perform the work necessary to fabricate, integrate, test, install and provide warranty and logistics services, including initial operator training for support of these NII inspection systems. Each NII inspection system shall include elements as defined in this Statement of Work /Performance Specification.

3.1.1 Performance Requirements for Category 1 - Low-Density Cargoes

1. **Resolution** – (b) (7)(E) [redacted]
2. **Penetration** – (b) (7)(E) [redacted]

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(b) (7)(E) [redacted]

3. **Contrast Sensitivity** (b) (7)(E) [redacted]

4. **Throughput** (b) (7)(E) [redacted]
5. **Image quality** - (resolution, contrast and penetration, etc.) shall be satisfied using high efficiency detectors
6. **A built-in capability** to passively detect (in a single pass) the presence of neutron and gamma radiation emissions is desired
7. (b) (7)(E) [redacted]
8. **Scan size** - Must show the entire target vehicle being scanned in a single screen display

3.1.1.1 Radioactive Material/ WMD

Radioactive materials and WMD detection and identification performance shall be demonstrated using standard radioactive test sources as described in **table 3 of the ANSI Standard N42.35** as threat surrogates.

3.1.2 System Configurations and Operational Specifications for Low Density Cargoes- CLIN's 00010 - 00040

The System Configurations and Operational Specifications will differ slightly based on the system configuration (i.e. Fixed, Mobile, Pallet or Rail). The following system configurations may be required under this contract and will be restricted to the operational aspects as described.

3.1.2.1 Configuration 1 – Fixed System for Low Density Cargoes - CLIN 00010

The Fixed systems required under this CLIN shall meet or exceed the Technical/Performance requirements as described in paragraph 3.1.1 of this SOW and shall include the following:

- Detector and Source System
- Detector Equipment
- X-ray or Gamma-Ray Source Equipment
- Command Center and Equipment or other housing
- Work Station Integration and Interface
- On-Site Training
- System Support

In addition to the performance requirements for low density the imaging system shall meet these operational specifications.

1. Maximum Controlled Operating Area - (b) (7)(E) [redacted]
2. Number of operators – (b) (7)(E) [redacted]
3. Operational Environment – (b) (7)(E) [redacted]
4. Radiation Dose Limit for Non Radiation Workers - .05 mR/hr. above background. (System operators, drivers and personnel outside a designated Controlled area)
5. Power Requirements–220 VAC, 1 to 3-phase, 80 Amps per phase 60- hertz power, and a surge protector for maintenance of the unit
6. Operating Hours (b) (7)(E) [redacted]
7. (b) (7)(E) [redacted]

3.1.2.2 Configuration 2 – Mobile System for Low Density Cargoes - CLIN 00020

The Mobile systems required under this CLIN shall meet or exceed the Technical/Performance requirements as described in paragraph 3.1.1 of this SOW and shall include the following:

- Mobile platform or Truck
- Detector and Source Boom Assembly
- Imaging System Equipment (i.e. X-ray or Gamma Ray)
- Operator Controls and Displays
- Work Station Integration and Interface
- On-Site Training
- System Support

In addition to the performance requirements for low density the imaging system shall meet these operational specifications.

1. Maximum Controlled Operating Area - (b) (7)(E) [redacted]
2. Number of operators – (b) (7)(E) [redacted]

(Formerly RFP HSBP1005R0376, Amendment 0002, Amended Attachment 1)

3. Operational Environment – (b) (7)(E) [redacted]
4. Travel Configuration – must be able to travel on highways with maximum height limited to 13 ft. 6 in. and maximum width limited to 8 ft. 6 in
5. Radiation Dose Limit for Non Radiation Workers - .05 mR/hr. above background. (System operators, drivers and personnel outside a designated Controlled area)
6. Power Requirements–220 VAC, 1 to 3-phase, 80 Amps per phase 60-hertz power, and a surge protector for maintenance of the unit
7. Operating Hours – (b) (7)(E) [redacted]
8. Maximum target vehicle Size – (b) (7)(E) [redacted]
9. Power Requirements–220 VAC, 1 to 3-phase
10. (b) (7)(E) [redacted]
11. Mounting Station for a Panasonic Toughbook (Model CF-29) that meets these operational specifications.

    a. Equipment - Mounting Station for Panasonic Toughbook (Model CF-29)
    b. Installation - Installed to allow easy access for Laptop Operation by CBP Officer
    c. Security - Key Lockable Mounting station to prevent theft
    d. Power Requirements - Power Supply for AC Adapter 100V-240V 50/60 Hz

3.1.2.3 Configuration 3 – Pallet System for Low Density Cargoes - CLIN 00030

The Pallet systems required under this CLIN shall meet or exceed the Technical/Performance requirements as described in paragraph 3.1.1 of this SOW and shall include the following:

- Detector and Source System
- Detector Equipment
- X-ray or Gamma-Ray Source Equipment
- Command Center and Equipment or other housing
- Work Station Integration and Interface
- On-Site Training
- System Support

In addition to the performance requirements for low density the imaging system shall meet these operational specifications.

1. Maximum Controlled Operating Area - (b) (7)(E) [redacted]
2. Number of operators – (b) (7)(E) [redacted]
3. Operational Environment – (b) (7)(E) [redacted]

(b) (7)(E)

4. Radiation Dose Limit for Non Radiation Workers - .05 mR/hr. above background. (System operators, drivers and personnel outside a designated controlled area)
5. Power Requirements–220 VAC, 1 to 3-phase, 80 Amps per phase 60- hertz power, and a surge protector for maintenance of the unit
6. Maximum pallet Size -(b) (7)(E)
7. Maximum pallet weight –(b) (7)(E)
8. Operating Hours – (b) (7)(E)
9. (b) (7)(E)

3.1.2.4 Configuration 4 – Rail System for Low Density Cargoes – CLIN 00040

The Rail systems required under this CLIN shall meet or exceed the Technical/Performance requirements as described in paragraph 3.1.1 of this SOW and shall include the following:

- Detector and Source System
- Detector Equipment
- X-ray or Gamma-Ray Source Equipment
- Command Center and Equipment or other housing
- Work Station Integration and Interface
- On-Site Training
- System Support

In addition to the performance requirements for low density the imaging system shall meet these operational specifications.

1. Maximum Controlled Operating Area – (b) (7)(E)
2. Scan Speed –(b) (7)(E)
3. Number of operators –(b) (7)(E)
4. Operational Environment – (b) (7)(E)
5. Radiation Dose Limit for Non Radiation Workers - .05 mR/hr. above background. (System operators, drivers and personnel outside a designated Controlled area)
6. Power Requirements–220 VAC, 1 to 3-phase, 80 Amps per phase 60-hertz power, and a surge protector for maintenance of the unit
7. System tunnel – must comply with the North American Train Bridge Envelope for all height and width requirements
8. Operating Hours – (b) (7)(E)
9. (b) (7)(E)

3.1.3 Performance Requirements for Category 2 - High-Density Cargoes

1. **Resolution** – (b) (7)(E) [redacted]
2. **Penetration** – (b) (7)(E) [redacted]
3. **Contrast Sensitivity** – (b) (7)(E) [redacted]
4. **Throughput** – (b) (7)(E) [redacted]
5. **Image quality** - (resolution, contrast and penetration, etc.) shall be satisfied using high efficiency detectors
6. **A built-in capability** - to passively detect (in a single pass) the presence of neutron and gamma radiation emissions is desired
7. (b) (7)(E) [redacted]
8. **Scan size** - Must show the entire target vehicle being scanned in a single screen display.

3.1.3.1 Radioactive Material/ WMD

Radioactive materials and WMD detection and identification performance shall be demonstrated using standard radioactive test sources as described in **table 3 of the ANSI Standard N42.35** as threat surrogates.

3.1.4 System Configuration and Operational Specifications for High Density Cargoes- CLIN's 00050 - 00080

The System Configuration and Operational Specifications will differ slightly based on the system configuration (i.e. Fixed, Mobile, Pallet or Rail). The following configurations may be required under this contract and will be restricted to the operational aspects as described.

(Formerly RFP HSBP1005R0376, Amendment 0002, Amended Attachment 1)

3.1.4.1 Configuration 5 – Fixed System for High Density Cargoes - CLIN 00050

The Fixed systems required under this CLIN shall meet or exceed the Technical/Performance requirements as described in paragraph 3.1.3 of this SOW and shall include the following:

- Detector and Source System
- Detector Equipment
- X-ray or Gamma-Ray Source Equipment
- Command Center and Equipment or other housing
- Work Station Integration and Interface
- On-Site Training
- System Support

In addition to the performance requirements for high density the imaging system shall meet these operational specification.

1. Maximum Controlled Operating Area - (b) (7)(E) [redacted]
2. Number of operators – (b) (7)(E) [redacted]
3. Operational Environment – (b) (7)(E) [redacted]
4. Radiation Dose Limit for Non Radiation Workers - .05 mR/hr. above background. (System operators, drivers and personnel outside a designated Controlled area)
5. Power Requirements–220 VAC, 1 to 3-phase, 80 Amps per phase 60- hertz power, and a surge protector for maintenance of the unit
6. Operating Hours (b) (7)(E) [redacted]
7. (b) (7)(E) [redacted]

3.1.4.2 Configuration 6 – Mobile System for High Density Cargoes – CLIN 00060

The Mobile systems required under this CLIN shall meet or exceed the Technical/Performance requirements as described in paragraph 3.1.3 of this SOW and shall include the following:

- Mobile platform or Truck
- Detector and Source Boom Assembly
- Imaging System Equipment (i.e. X-ray or Gamma Ray)
- Operator Controls and Displays
- Work Station Integration and Interface
- On-Site Training
- System Support

In addition to the performance requirements for high density the imaging system shall meet

these operational specification.

1. Maximum Controlled Operating Area - (b) (7)(E) [redacted]
2. Number of operators – (b) (7)(E) [redacted]
3. Operational Environment – (b) (7)(E) [redacted]
4. Travel Configuration – must be able to travel on highways with maximum height limited to 13 ft. 6 in. and maximum width limited to 8 ft. 6 in
5. Radiation Dose Limit for Non Radiation Workers - .05 mR/hr. above background. (System operators, drivers and personnel outside a designated Controlled area)
6. Power Requirements--220 VAC, 1 to 3-phase, 80 Amps per phase 60-hertz power, and a surge protector for maintenance of the unit
7. Operating Hours – (b) (7)(E) [redacted]
8. Maximum target vehicle Size – (b) (7)(E) [redacted]
9. Power Requirements--220 VAC, 1 to 3-phase

12. (b) (7)(E) [redacted]

13. Mounting Station for a Panasonic Toughbook (Model CF-29) that meets these operational specifications.

    a. Equipment - Mounting Station for Panasonic Toughbook (Model CF-29)
    b. Installation - Installed to allow easy access for Laptop Operation by CBP Officer
    c. Security - Key Lockable Mounting station to prevent theft
    d. Power Requirements - Power Supply for AC Adapter 100V-240V 50/60 Hz

3.1.4.3 Configuration 7 – Pallet System for High Density Cargoes - CLIN 00070

The Pallet systems required under this CLIN shall meet or exceed the Technical/Performance requirements as described in paragraph 3.1.3 of this SOW and shall include the following:

- Detector and Source System
- Detector Equipment
- X-ray or Gamma-Ray Source Equipment
- Command Center and Equipment or other housing
- Work Station Integration and Interface
- On-Site Training
- System Support

In addition to the performance requirements for high density the imaging system shall meet these operational specification.

(Formerly RFP HSBP1005R0376, Amendment 0002, Amended Attachment 1)

1. Maximum Controlled Operating Area - (b) (7)(E) [redacted]
2. Number of operators – (b) (7)(E) [redacted]
3. Operational Environment (b) (7)(E) [redacted]
4. Radiation Dose Limit for Non Radiation Workers - .05 mR/hr. above background. (System operators, drivers and personnel outside a designated controlled area)
5. Power Requirements–220 VAC, 1 to 3-phase, 80 Amps per phase 60- hertz power, and a surge protector for maintenance of the unit
6. Maximum pallet Size - (b) (7)(E) [redacted]
7. Maximum pallet weight – (b) (7)(E) [redacted]
8. Operating Hours (b) (7)(E) [redacted]
9. (b) (7)(E) [redacted]

3.1.4.4 Configuration 8 – Rail System for High Density Cargoes – CLIN 00080

The Rail systems required under this CLIN shall meet or exceed the Technical/Performance requirements as described in paragraph 3.1.3 of this SOW and shall include the following:

- Detector and Source System
- Detector Equipment
- X-ray or Gamma-Ray Source Equipment
- Command Center and Equipment or other housing
- Work Station Integration and Interface
- On-Site Training
- System Support

In addition to the performance requirements for high density the imaging system shall meet these operational specification.

1. Maximum Controlled Operating Area – (b) (7)(E) [redacted]
2. Scan Speed – (b) (7)(E) [redacted]
3. Number of operators – (b) (7)(E) [redacted]
4. Operational Environment – (b) (7)(E) [redacted]
5. Radiation Dose Limit for Non Radiation Workers - .05 mR/hr. above background. (System operators, drivers and personnel outside a designated Controlled area)
6. Power Requirements–220 VAC, 1 to 3-phase, 80 Amps per phase 60-hertz power, and a surge protector for maintenance of the unit
7. System tunnel – must comply with the North American Train Bridge Envelope for all height and width requirements

8. Operating Hours – (b) (7)(E) [redacted]
9. (b) (7)(E) [redacted]

3.1.5 Detectors

As part of the NII system, the contractor shall deliver an array of detectors that are capable of meeting the Performance Specifications as described in this SOW.

3.1.6 Sources

The contractor shall deliver an imaging source, which may incorporate standard transmission x-ray with or without backscatter measurement technology or gamma ray source or sources and the source housing designed to best commercial practice.

3.1.7 Imaging System Equipment and Equipment Installation

In accordance with this Statement of Work/ Performance Specification, the contractor shall deliver NII Systems incorporating radiographic measurement technology designed to best commercial practice. However, at no time, shall safety, quality, or performance of equipment be compromised or sacrificed.

3.2 Systems Integration

Integration of NII inspection system equipment and its supporting Subsystems shall be the responsibility of the NII systems contractor.

3.2.1 Command Center Booth (Fixed, Pallet, Rail)

The contractor shall deliver a Command Center designed to best commercial practice for housing the systems workstation / operating equipment for the Fixed, Pallet and Rail II systems. The systems workstation / operating equipment for the mobile systems shall be housed inside the mobile unit.

3.2.2 Workstation Integration and Interface

The contractor shall deliver the Workstation and Interface system for Fixed, Pallet, Mobile and Rail NII systems to include operator console and all operating systems, software, cameras, controls and displays to depict a video and radiographic image of the target.

(b) (7)(E)

[redacted]

3.3 Safety Interlocks

The NII system shall be designed to include safety interlocks which will allow an operator to interrupt the scanning process thereby closing the shutter in an emergency or when there is an unauthorized entry inside the systems given footprint.

3.4 Transport Vehicle (Mobile Systems)

The contractor shall deliver NII Mobile Inspection Systems with a vehicle capable of meeting all federal highway gross weight and dimension requirements.

3.5 Reliability, Availability and Maintainability

Each NII system is expected to have the highest Reliability, Availability and Maintainability achievable for this type of technology. The following are our minimum expectations for these systems.

3.5.1 Basic Reliability Quantitative Requirements

(b) (7)(E) [redacted]

3.5.1.1 Reliability Predictions

The Contractor shall perform reliability predictions for the NII equipment. The prediction shall assume a constant failure rate for parts. For parts where no failure rate is available, a failure rate shall be estimated and the basis for the estimation shall be stated. Consideration of environmental factors for systems operated outside shall be for fixed, rail and mobile equipment. The external ambient temperatures utilized in the reliability prediction shall be based upon the upper and lower operating temperatures of the NII system. These Reliability Predictions will be matched to Measured Reliability during the Warranty Period.

3.5.1.1.1 Reliability Predictions Report

The Contractor shall submit a reliability prediction report as part of their proposal and shall be prepared in accordance with Data Item Description number A002. The Contractor shall identify reliability critical items.

3.5.1.1.2 Classification of Reliability Critical Items

A Critical Item is an identified weak link in a system, has an adverse impact on failures of the system performing its mission, creates potential safety problems, or contributes to other areas of high risk to overall system reliability. The Contractor shall classify all NII items as critical if one or more of the following conditions are satisfied:

a. Item represents a significant new development or application.
b. Item has critical failure modes.
c. Item has history indicating need for improvement. A Preplanned Product Improvement Plan (PPIP) shall be developed and provided by the Contractor for any item with a history of needing improvement.
d. Item has known operating life, limited shelf life, or environmental sensitivity (e.g., vibration, thermal, etc.) that warrants controlled surveillance.
e. Item whose failure can result in the failure of the system and which is not compensated by redundancy or alternate operational procedures.

3.5.1.1.3 Control of Reliability Critical Items

The Contractor shall be responsible for the control of critical items, which shall include as a minimum:

a. Procedures for the procurement of critical items.
b. Criteria and procedures for the design and redesign of critical items
c. Procedures for controlling and monitoring of critical items after manufacture (e.g., date coding, traceability, assembly techniques, test requirements, acceptance test requirements, control of sub-contractors' and manufacturers' controls, in-process controls, special handling, and storage requirements).

3.5.1.1.4 Reliability Review

The Contractor shall identify and discuss all aspects of the prime item's reliability features and characteristics.

3.5.2 Availability

The Inherent Availability of the NII system shall be a minimum of 0.97.66 based on the model:

$$Ai = \frac{MTBF}{MTBF + MTTR}$$

Where:
Ai = Inherent Availability
MTBF = Mean Time Between Failures
MTTR = Mean Time To Repair

Inherent Availability is defined as the probability that the NII system, in the ideal NII system environment (i.e., readily available tools, spares, maintenance personnel, etc.) will operate satisfactorily at any point in time when called upon for operation. It excludes scheduled maintenance actions, logistics delay time, and administrative delay time.

3.5.3 Maintainability

3.5.3.1 Maintenance Plan

The Contractor shall provide Maintenance Planning and Supply Support Plan sufficient to allow operation of the NII system throughout its planned life. The overall maintenance strategy is to provide NII system maintenance on three (3) levels: Organizational, Intermediate, and Depot. The Contractor shall provide a complete list of maintenance tasks and recommend the proper level of maintenance required, provide all documentation required, and identify parts required to complete each task.

3.5.3.2 Mean Time to Repair (MTTR)

Inherent to the vendors design the Mean Time to Repair (MTTR) for Large Scale NII systems shall not exceed 24 hours. MTTR is defined as the total time duration from notification of the repair activity until the system is returned to service ready status. The MTTR shall include on-system analysis and diagnostics.

3.5.3.3 Maximum Corrective Maintenance (Unscheduled Maintenance) Time (MCMT)

Inherent to the vendors design the Maximum Corrective Maintenance (Unscheduled Maintenance) Time (MCMT) for Large Scale NII systems shall not exceed 111 hours at the 98.5 percentile. The MCMT shall apply to on-system analysis and diagnostics. MCMT shall be defined as the time required for unscheduled maintenance, excluding administrative time. Administrative time shall include items such as test equipment assembly time, equipment-not-under-repair warm-up time, travel time to and from the job, reference material acquisition time, training time, quality inspection time, and workload control time.

3.5.3.4 Mean Preventive Maintenance Time (MPMT)

Inherent to the vendors design the Mean Preventive Maintenance Time (MPMT) for Large Scale NII systems shall not exceed 1.0 hours per (b) (7)(E) operating day, cumulative, calculated quarterly. MPMT shall be defined as the time required for unscheduled maintenance, excluding administrative time. Administrative time shall include such items as test equipment assembly time, equipment-not-under-repair warm-up time, travel time to and from the job, reference material acquisition time, training time, quality inspection time, and workload control time.

3.5.3.5 Maintenance Activity

The Contractor shall conduct a Failure Mode Analysis (FMA) and a Level Of Repair Analysis (LORA), perform trade studies and optimize the total operation and maintenance concept and procedures for each configuration of the system. The Contractor shall develop diagnostic, preventive maintenance and repair procedures, and identify repair parts and special tools required to perform maintenance tasks. The contractor shall provide the information in a Maintenance Manual. For the purposes of the Specification, the following applies: a) Preventive Maintenance consists of those tasks performed at predetermined intervals in accordance with a maintenance schedule to ensure continuous satisfactory operation of the NII system. b) Corrective Maintenance consists of those repair tasks performed at the NII system by maintenance personnel to remedy malfunctions and return the NII system to a fully operable condition. Technicians shall perform all maintenance tasks. No Corrective or Preventive Maintenance shall be designed for performance by CBP Officers and Agents.

3.5.3.5.1 Preventive Maintenance

Preventive Maintenance (PM) tasks shall be identified and provided in the Maintenance Manual by the Contractor to include schedules, MTTR, parts, components, procedures, and systems.

3.5.3.5.2 Corrective Maintenance

Corrective Maintenance (CM) by its nature cannot be scheduled in advance or accurately predicted. The Contractor shall identify all Corrective Maintenance tasks that have occurred in the history of the subject NII device, or a similar device, and maintain a list of such tasks. Corrective Maintenance tasks shall be identified by the Contractor to include MTTR, parts, components and systems and provide all Corrective Maintenance tasks in the Maintenance Manual.

3.5.3.5.3 Extreme Environmental Maintenance Considerations

The Contractor shall identify all environmental conditions within the required operating environment considered extreme. The Contractor shall identify all extreme environmental maintenance tasks required for the operation of the NII systems in extreme environments. The list of tasks shall include MTTR, parts, components, procedures and systems, and they shall be provided in the Maintenance Manual. The environmental conditions list shall be prepared in accordance with Data Item Description number A003 and the list shall be maintained in the Technical Documentation Package for all NII devices throughout its life.

3.5.3.5.4 Hazardous Materials Considerations

The Contractor shall identify all Hazardous Materials in all maintenance tasks in the Maintenance Manual. The list shall include the material description, quantity of the material, disposal instructions, exposure risks, symptoms and treatments. The list shall be prepared in accordance with Data Item Description number A004 and be maintained in the Technical Documentation Package throughout the life of the NII system. The list shall be derived for the Hazardous materials identified in the Code of Federal Regulations, 49CFR172 (Hazardous Materials Table, etc.), 2003 (DOT)

3.6 Site Preparation - CLIN 00090

The contractor shall provide to CBP design criteria for surface grade and any other environmental operating limits. The design criteria shall be prepared in accordance with the attached Data Item Description number A005. The contractor shall identify to CBP their requirements for exterior lighting, phone lines and electrical power for the system. Within 45 days of notification of each site selected for NII system installation, the contractor shall identify all site-specific facility requirements to CBP. CBP will ensure the assigned site meets these requirements. Upon approval of the site documentation the contractor shall be responsible for installation of the system if required by the NII configuration.

3.7 System Support Requirements

The following identify the programmatic and logistical requirements for NII Inspection Systems. The contractor shall prepare Monthly Progress Reports in accordance with the attached Data Item Description number A006.

3.7.1 System Training - CLIN 00100

Training development is required for all NII systems and related items produced under this contract. The Training shall consist of procedures for installation, setup, operating and maintaining the NII systems developed or produced as appropriate. Documentation of the Training may include but is not limited to a Training Plan, Student Guides, Instructor Guides, handout materials and other training aids, "hands on" exercises, a training report, and student evaluations of the training. All training shall be customized to CBP missions and requirements, and provided in accordance with CBP Office of Training and Development criteria. All Training Documentation shall be incorporated into the Technical Documentation package. The Government shall have full access to all data in the Technical Documentation file for the purposes of maintaining and upgrading the NII system, and training NII system operators and Maintenance Technicians.

3.7.1.1 Operator Training - CLIN 00110

The contractor shall provide on-site training for CBP operator personnel at each site using materials to include classroom instruction, video, and on-the-job training aids. The training shall cover the imaging equipment, transport system operation, normal and emergency systems operations, image interpretation, and operator console operations. Training shall also include all items contained in the System User's Manual. The number of personnel to be trained at each site is variable, but efforts shall be made to limit each training class to 12 operators. Training shall not exceed 32 hours per operator. The contractor shall develop and provide training materials using the Instructional Systems Development (ISD) methodology which includes (1) Training Plan Outline, (2) Course Syllabus, (3) Instructor' s Guide, (4) NII System description, (5) Student Guide, (6) Operator's and Maintainer's Manuals, (7) Operation Procedures Handouts, (8) operator's video, and (9) other materials. This shall be prepared in accordance with Data Item Description number A007. Training for CBP designated Acceptance Team personnel shall be completed seven days before system acceptance testing. Details of the training and training schedule shall be included in the Training Plan (TP). The TP, associated documentation and operator's video shall be prepared in accordance with the attached Data Item Description numbers A009. A copy of the operator's training Video shall be left at each site at the conclusion of testing. Operator training shall be completed within 15 working days after system acceptance.

3.7.1.2 Train-the-Trainer CLINs 00120 - 00130

The contractor shall develop and provide Train-the-Trainer courses to include classroom, video and on-the-job training aids. As a minimum, the training shall cover the imaging equipment and transport system operation, normal and emergency systems operations, target interpretation, and operator console operations. Training shall also include all items contained in the System Users' Manual.

The contractor shall be required to present this training to the CBP instructors at the Federal Law Enforcement Training Center (FLETC) in Brunswick, GA

3.7.1.3 Technical Manuals - CLIN 00140

The contractor shall provide a System's User Manual and Maintenance/Service Manual and Vendor Technical Documentation prepared in accordance with the attached Data Item Descriptions numbers A008, A009 and A010. Use commercial-off-the-shelf manuals when feasible. Make all manuals in the interactive electronic format.

3.7.1.3.1 Operator's Manual

An Operator's Manual is required for each unit developed or produced under this contract. The Operator's Manual shall contain a description of the NII device and its operation. System limitations, safety information, and other important information shall be highlighted. The Operator's Manual shall contain a detailed explanation of every task required during the operation of the NII system. Any operator-level maintenance tasks shall be fully explained in the Operator's Manual.

3.7.1.3.2 Operational/Storage Checklist

A laminated Operators Checklist shall be provided on a single sheet, listing each step in the procedure required: (1) for operating the NII system, (2) for preparing an operational system for short or long-term storage, and (3) for preparing a stored NII system for operation. The checklist shall only list the sequential steps. Each step shall be described in detail in the Operator's Manual and each step shall reference an Operator's Manual page number. The checklist shall be attached to the NII system near the operator's station.

3.7.1.3.3 Maintenance Manual

Corrective and Preventive Maintenance actions and procedures shall be documented in a Maintenance Manual. A Maintenance Manual is required for each production lot of NII systems developed or produced under this contract. A single Maintenance Manual may apply to more than one (1) NII system provided the systems are similar or a revision of an existing system. Identification of NII model number and/or revision number shall be clearly explained in the Maintenance Manual. The Maintenance Manual shall contain a description of the NII device and its operation. System limitations, safety information, and other important information shall be highlighted.

3.7.1.3.3.1 Preventive Maintenance

The Maintenance Manual shall contain a detailed explanation of every task required on the Preventive Maintenance Schedule. All components with a service life less than the NII system shall be identified and addressed in the preventive maintenance schedule.

3.7.1.3.3.2 Corrective Maintenance

The Maintenance Manual shall contain a detailed explanation of every foreseeable task from the Level of Repair Analysis required to repair the NII system in case of failure. The Maintenance Manual shall be continuously updated during the service life of the NII system to incorporate unforeseen corrective maintenance tasks.

(Formerly RFP HSBP1005R0376, Amendment 0002, Amended Attachment 1)

3.7.2 Technical Reviews

The contractor shall host, at his facility, a contract kick-off meeting, System Review (SR), a Final Configuration Review (FCR) and a Factory Acceptance Test meeting. Quarterly reviews will be held at a government site or the contractor's facility and may be combined with major program reviews. The contractor shall document and prepare for CBP approval all meeting and review minutes. The contract kick-off meeting shall be within 30 days after contract award. The SR shall be 120 days and the FCR 210 days after contract award. All meeting dates shall be mutually agreed upon.

3.7.2.1 Other Reviews

The contractor shall hold additional reviews as deemed necessary by CBP not to exceed four (4) per year.

3.8 Warranty

The contractor shall provide a minimum of one-year Failure Free total system warranty for all NII systems, to include the transporter, detectors, imaging source, signal processors and operator console equipment. All repair actions during the warranty shall be included in a Failure and Error Report prepared in accordance with the attached Data Item Description number A011.

At the end of the warranty period, the CBP National Enforcement Equipment Maintenance and Repair (NEEMR) organization will perform all maintenance. The Contractor shall involve and integrate NEEMR into the maintenance process during the Warranty Period to ensure a smooth transition. All warranty and post-warranty requests for service and support from the field will be conveyed to the service provider with an assigned Job Control Number (JCN) by the 24/7 NEEMR helpdesk at 1-866-NEEMRAID.

3.8.1 Reporting

During the warranty, the Contractor shall maintain a log of all maintenance actions. The log shall include the description of operational activities prior to a failure with a description of the failure, shut down causes, corrective actions taken, serial number of the item repaired, hour meter reading, list of the items repaired/replaced, date repair was completed and item's home port. The Contractor shall establish, define, and report logistics figures of merit based on the log. These figures shall include (at a minimum), Mean Time Between Failure (MTBF), Mean Time to Repair (MTTR), Mean Cost to Repair (MCTR) and Mean Customer Wait Time (MCWT). At the expiration of warranty period, the contractor shall submit reports reflecting figures of merit that span the entire warranty period.

3.8.2 Corrosion Control

The Contractor shall design and manufacture the NII system to prevent corrosion induced by weather, airborne pollution, salt-water spray, ice inhibiting road chemicals, geographic operating environments, and galvanic reaction.

During the period of warranty, the Contractor shall perform a corrosion control program that shall include inspection, cleaning, washing, scaling, corrosion inhibitor application, priming, painting, and waxing surfaces exposed to the elements. The Contractor shall document in the NII system logbook the actions taken, the treatment site, and the contact information of the service provider.

3.9 Quality Assurance and Testing

The contractor shall perform inspections and tests necessary to ensure that NII Inspection Systems conforms to CBP approved technical documentation and configuration.

3.9.1 Quality Assurance

The contractor shall provide for government review a quality assurance plan prepared in accordance with Data Item Description number A012 as it pertains to the production and manufacturing of NII Inspection Systems. The Contractor shall provide for Government review a plan for measuring performance during the warranty period. CBP technical team members shall observe and evaluate the contractor's Factory Acceptance Test program on an "as required" basis.

3.9.2 Testing

The contractor shall be responsible for the preparation of and submission to CBP for approval, an Acceptance Test Plan (ATP), in accordance with the attached Data Item Description number A013. The contractor shall perform the tests necessary to ensure that NII system components are operating as specified in the ATP. **The vendor shall utilize applicable ASTM standards, i.e. ASTM E 592-99, ASTM E 747-97, ASTM E 1025-98, and ASTM F 792-01, for evaluation and testing of image and system performance requirements.** CBP officials, or their representatives, shall witness all formal testing and sign applicable documentation. Designated CBP personnel or their representatives shall perform the final on-site acceptance testing. The NII system shall pass all test elements of the ATP prior to acceptance by CBP. The vendor shall prepare and submit all materials necessary for FDA review in accordance with regulations and apply for waivers as necessary. The FDA submission and any exception to this certification must be clearly identified and copied to the CBP COTR.

3.9.2.1 Acceptance Testing

Acceptance testing shall be conducted for each system by CBP in accordance with a CBP Acceptance Test Plan. This test will consist of three major items; inventory and physical inspection, integrated system performance, and a radiological survey.

3.9.3 ILS Testing

During the warranty period the Contractor shall develop and execute a Quality Assurance Surveillance Program (QASP) to verify that the ILS requirements of the Statement of Work are met. The QASP shall define and measure figures of merit, including, MTBF, MTTR and actual Availability.

3.10 Radiation Safety Design Review

The contractor is required to demonstrate the construction techniques, practices and design of the protective shielding/cabinet interfaces (corner joints, collimator joints, imaging source housing, etc.) **and shall be in compliance with ANSI N 43.3 standard for their system**. The contractor shall ensure that any movement or shifting that may be associated with a mobile system can not produce or lead to emission leaks from cracks, stress or misalignment of the structures and shielding devices that are either associated with the primary beam containment or scatter containment scheme.

3.11 Calibration

The contractor shall provide to CBP all requirements associated with calibration of the NII system. The contractor shall identify in the maintenance manuals the calibration procedures and any special test equipment. The contractor shall identify all systems, subsystems, equipment, and support equipment, which requires calibration.

3.11.1 Calibration Maintenance Requirement Report

The contractor shall provide to CBP a Calibration Maintenance Requirement Report (CMRR) for all operational and support equipment. The CMRR Report shall be prepared in accordance with the attached Data Item Description number A014.

3.12 Safety

The contractor for NII Inspection Systems shall maintain a system safety program that continually identifies all hazards and provides a methodology to either eliminate or control these identified hazards.

3.12.1 Radiological Survey and Report

The contractor for NII Inspection Systems shall be required to conduct a radiological survey to ensure that radiation emissions are within specified limits. Each system delivered shall be accompanied with a report of the radiological survey performed on the NII unit, signed by the responsible quality control officer of the company. This survey will address both the radiation levels that NII Inspection System operators will be exposed to while at their workstations, and the level of radiation that is transmitted to the environment as a result of system leakage. The report shall show that by means of an outline drawing the levels of emission/scatter radiation measured, the operating conditions (worst case) and the measurement equipment used. The contractor shall provide a radiological survey report in accordance with the attached Data Item Description number A015 for each system delivered.

4.0 INTEGRATED LOGISTICS SUPPORT FOR LARGE SCALE NII SYSTEMS

The CBP National Enforcement Equipment Maintenance and Repair (NEEMR) Program will manage the life-cycle requirements (i.e., maintenance, training, property management, etc.) after the NII unit is accepted.

4.1 Configuration Management

The contractor shall implement the Configuration Management Plan with the establishment of a Configuration Control Board (CCB). The contractor shall provide an as-built Configuration Baseline as identified in the attached Data Item Description number A016 with the delivery of each NII configuration. All configuration changes require prior approval of TSB's CCB. Hardware changes beyond Final Configuration Review (FCR) will require prior CBP approval. The contractor shall establish software CCB to review software changes until the delivery of the first NII system. CCB approval shall be required for changes to the software baseline and after the first delivery of a NII system.

4.1.1 Technical Documentation CLIN - 00150

The Technical Documentation shall consist of all documentation used by the Contractor and all Sub-Contractor's in the production of the NII system and any follow-on production or modification. This shall include the Configuration List and any background or supporting documentation used to make design or production decisions. The Technical Documentation Package shall be prepared in accordance with Data Item Description number A017. The manufacturer shall maintain this documentation past the planned life of the NII system. The Government shall have unlimited data rights (FAR 52.227-14) to all

data in the Technical Documentation file for the purposes of maintaining the NII system and training NII system operators and Maintenance Technicians. Data initially produced under this contract shall be conveyed to Government free of proprietary claim. Data produced prior to this contract shall be conveyed assigning to the Government and its agent the right to use and copy the material solely for the purpose of repair maintenance and training.

4.1.1.1 Configuration Baseline

The Configuration Baseline is: (1) An agreed-to description of the attributes of a product, at a point in time, which serves as a basis for defining change. (2) An approved and released document, or a set of documents, each of a specific revision; the purpose of which is to provide a defined basis for managing change. (3) The currently approved and released configuration documentation. (4) A released set of files comprising a software version and associated configuration documentation. A Configuration Baseline shall be established and maintained for the NII system by the Contractor. All NII units delivered within a production lot shall be identical and conform to the Configuration Baseline. The Configuration Baseline shall be incorporated into the Technical Documentation and maintained by the Contractor during the term of the contract. The Government shall have unlimited data rights (FAR 52.227-14) to all Configuration Baseline documentation for the purposes of maintaining the NII system. Data initially produced under this contract shall be conveyed to Government free of proprietary claim. Data produced prior to this contract shall be conveyed assigning to the Government and its agent the right to use and copy the material solely for the purpose of repair maintenance and training.

4.1.2 Management of the Technical Documentation

The Contractor shall maintain a Technical Documentation file at the contractor's point of manufacture, which contains all relevant data for the design and production of the NII system produced under this contract. Management of this data shall be in accordance with the CBP Configuration Management Plan.

4.1.3 Engineering Change Proposals (ECPs)

The Contractor is encouraged to pursue continuous improvements to the delivered product, particularly in the areas of enhancements, cost and reliability. Engineering Change Proposals (ECPs) are provided for within this contract and their use is strongly supported. ECPs are proposals to enhance the value of the finished goods or services to the Government or reduce the cost of the good or services. All ECPs submitted shall be incorporated into the Technical Documentation package. ECPs that are approved shall be incorporated into the Configuration Baseline. All ECPs shall be submitted in accordance

with the Engineering Changes clause of this contract. ECPs will be processed in accordance with CBP's Configuration Management Plan.

4.1.4 Interchange ability

Components with identical functions shall be interchangeable to the greatest extent practical. Components with identical functions in existing CBP systems are desired to be interchangeable. Components with non-identical functions shall not be, or appear to be, interchangeable.

4.1.5 Accessibility

All systems or components that are serviced as part of periodic maintenance shall be readily accessible for service and inspection. To the greatest extent practicable, the removal or the physical movement of components unrelated to the specific maintenance and/or repair tasks involved shall be minimized. The measured time that is required to gain access to a component shall be inversely proportional to the frequency of the maintenance and repair of that component.

4.2 Spares

Spares, repair parts and supplies for the ongoing operational and maintenance support will be provide under separate maintenance contract.

5.0 DOCUMENTATION DELIVERABLES

DIDs are provided for all documentation deliverables as an attachment. All materials prepared for this SOW shall be in accordance with CBP approved contractor format. Any changes or updates to previously provided data, if required, shall be delivered as "change pages" to existing documents. The contractor as required shall provide the following documentation and/or documentation updates:

DID	TITLE
A001	Project Management Plan
A002	Reliability Prediction Report
A003	Extreme Environment Maintenance
A004	Hazardous Materials List
A005	Equipment Installation Data Package
A006	Monthly Progress Report
A007	Operator Training